REMARKS

Claims 18—28 and 31—33 have been withdrawn. Claims 1—3 and 8—10 were rejected. Claims 1, 2 and 10 were rejected in view of Koizumi *et al.* Claims 1, 2, 3, 8, 9 and 10 were rejected in view of the Jung article. Claims 29 and 30 were allowed. The remaining claims were objected to.

Rule 132 declarations are attached which attest to the fact that two of the four co-authors of the Jung article are not co-inventors, and that the named inventors are the sole inventors. Thus, the Jung reference is believed to be deemed inapplicable to the subject matter of claim 3, *inter alia*. As a consequence, independent claim 1 has been amended to incorporate the subject matter of dependent claim 3. Claims 2 and 3 are cancelled. Claims 4—15 and 17 depend from independent amended claim 1. Claims 29 and 30 are allowed. Thus, all now pending claims are believed to be allowable.

Nonetheless, to avoid an estoppel of record, applicants offer the following comments and reserve the right to file a continuation. That is, in paragraph 3 of the Official Action and with respect to claims 1, 2, and 10, the Examiner referenced Koizumi *et al.*, "Material Science and Engineering" (reference AH on the 1449 form). The Examiner asserted that this reference teaches a shape memory alloy, where the chemical equilibrium temperature T_0 would appear to be a result of the composition and processing history of a given alloy. In paragraph 5. a), the Examiner further asserted that Koizumi *et al.* specifically state that the material under discussion in the prior art has been known as a shape-memory alloy.

It is noted that NiTi alloys have, indeed, been generally known as shape-memory alloys; however, Koizumi *et al.* investigated the feasibility of designing and developing new alloys to

replace nickel-base superalloys, particularly in turbine disks, by examining the high-temperature strength of NiTi alloys. The alloys studied by Koizumi *et al.* were not capable of exhibiting the shape-memory effect and were not represented as such. As discussed in paragraph [0050] of the present application publication, Al added to form the Heusler phase has significant solubility in the B2 matrix, and decreases the transformation temperatures drastically. Because of the strong decrease of transformation temperatures by Al in B2, elements which can offset the effect by stabilizing the martensite phase, such as Hf, Zr, Pd, and Pt are added. As discussed in paragraph [0070] of the present application publication, when these martensite-stabilizing elements are present only in a limited amount, the martensitic transformation temperature is below –150°C. Such is the case for alloys A, A+5Hf, A+5Zr, B+5Pd, B+20Pd, and B+5Pt of the present application and the alloys of Koizumi *et al.* In sum, the complex balancing of alloy content for high parent-phase strength and martensite phase stability in a shape-memory alloy as claimed is not taught nor can it be inferred from Koizumi *et al.*

As noted, in paragraph 4 of the Official Action, further elaborated in paragraph 5. b), claims 1, 2, 3, 8, 9, and 10 were rejected on the basis of reference AD in the 1449 form, an article from the "Metallurgical and Materials Transactions" based upon a manuscript submitted by Jung *et al.* on April 23, 2002. However, this manuscript only discloses relevant phase relations measurements of model alloys which do not exhibit shape memory phase transformation thus rendering the reference inapposite. Nonetheless, applicants have prepared declarations stating that two named authors of the Jung *et al.* publication are not inventors of the subject matter claimed in the present application, but merely individuals who performed services at the direction and within the control and supervision of the named inventors.

In view of the foregoing, therefore, it is believed that the claims in their amended condition are allowable. Allowance thereof is therefore respectfully requested.

Respectfully submitted,

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